Cisco SRP 500 Series Services Ready Platforms

Flexible, Cost-Effective Customer Premises Equipment for Small Business

Part of the Cisco Small Business Pro Series

Demand for managed services is expected to grow dramatically over the next four years, with small businesses--those with fewer than 100 employees--expected to make up more than half of this market opportunity. These companies may have complex IT needs but generally don't have the technical staff or expertise needed to keep up. They look to service providers for a flexible infrastructure and simplified management, along with better quality and reliability than they can achieve in-house. To meet this opportunity, service providers are transforming their networks, using services-ready platforms to deliver an array of profitable IP-based communications services.

Cisco® SRP 500 Series Services Ready Platforms are flexible, cost-effective fixed-configuration customer premises equipment (CPE) with embedded intelligence to enable service providers to create, provision, and deploy premium revenue-generating services--a variety of high-quality IP voice, data, security, wireless, and application services--to small businesses on an as-needed basis. These platforms will help enable service providers to deliver differentiated, converged service offers that increase bandwidth usage and average revenue per user while reducing customer churn.

Product Overview

Cisco SRP 500 Series Services Ready Platforms include:

- Embedded intelligence to support a variety of high-quality voice, data, security, wireless, and application services.
- Integrated voice ports powered by an industry-leading voice Session Initiation Protocol (SIP) stack to deliver clear, high-quality voice service.
- Integrated stateful packet inspection (SPI) firewall and high-speed IP Security (IPsec) VPN capabilities with support for Triple Data Encryption Standard (3DES) to help keep small business data safe.
- 4-port managed Ethernet switch to connect devices in the office. One port can be designated as the network edge, while VLAN support allows for highly secure segmentation of network resources.
- Integrated 802.11n wireless access point to enable employees to connect to the network while away from their desks.
- Third-generation (3G) wireless data readiness with built-in USB modem drivers.
- Interoperability with industry-leading DSL access multiplexers (DSLAMs), soft switches, and voice gateways to enable scalable, end-to-end multiservice network deployments.
- Support for industry-standard TR-069 and XML-based provisioning for zero-touch deployments.
- Easy integration with other Cisco Small Business Pro Series products to enable adaptability as customer needs change.

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Figure 1 shows the Cisco SRP 521W Services Ready Platform.

Figure 1. Cisco SRP 521W Services Ready Platform

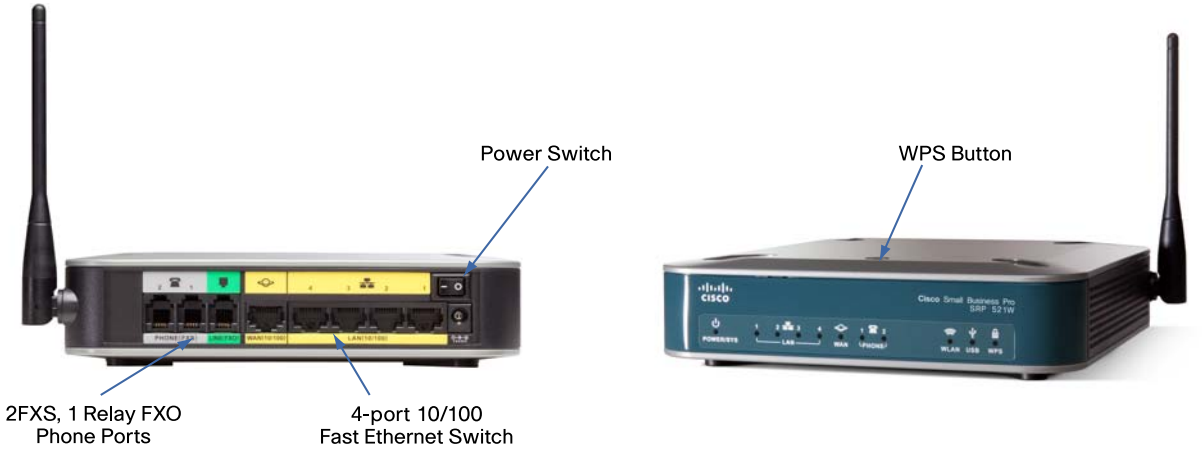

Table 1 lists the models in the Cisco SRP 500 Series.

Table 1. Cisco SRP 500 Series Models

Model	WAN	Backup WAN	LAN	Voice Ports	USB 2.0 Ports
Cisco SRP 521W	10/100 Mbps Fast Ethernet	Wireless data using supported 3G USB modem	4 ports 10/100 Mbps Fast Ethernet	2 FXS, 1 FXO (relay)	1
Cisco SRP 526 W	Asymmetric DSL (ADSL) 2+ Annex B	Wireless data using supported 3G USB modem	4 ports 10/100 Mbps Fast Ethernet	2 FXS, 1 FXO (relay)	1
Cisco SRP 527W	ADSL 2+ Annex A	Wireless data using supported 3G USB modem	4 ports 10/100 Mbps Fast Ethernet	2 FXS, 1 FXO (relay)	1

Applications

Cisco SRP 500 Series Services Ready Platforms contain embedded application intelligence to enable service providers to add and/or remove services remotely, depending upon end customer requirements, without hardware upgrades or costly truck rolls.

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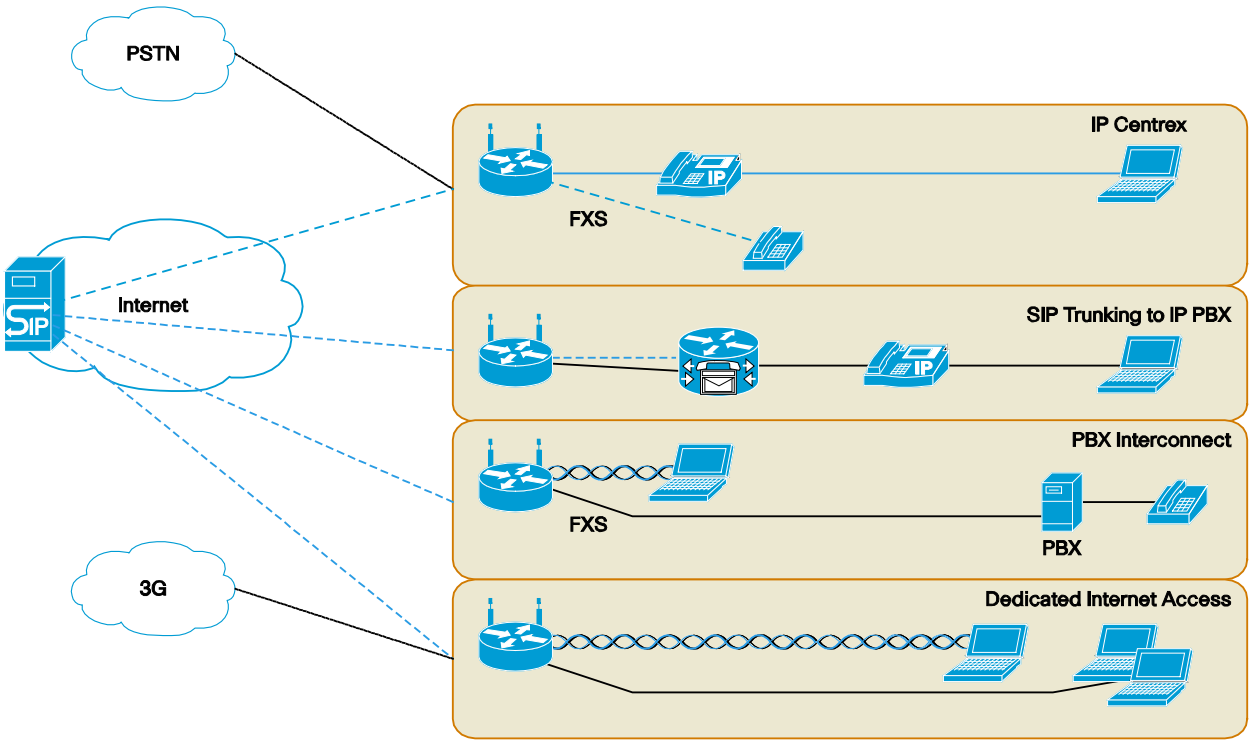
Figure 2. Applications embedded in the Cisco SRP 500 Series



Features and Benefits

Cisco SRP 500 Series Services Ready Platforms are flexible, cost-effective CPE devices for small businesses that meet the needs of service providers through:

- **Embedded intelligence** to support concurrent, premium revenue-generating services such as voice, data, security, and applications. Service providers can easily create and provision a variety of service offerings, adding or removing them remotely as their customers' needs change
- **Industry-leading SIP stack** that delivers an advanced implementation of standard voice coding algorithms for clear, high-quality voice under diverse network conditions, along with support for common telephony features such as voicemail, fax, and interactive voice response systems
- **Interoperability** with industry-leading DSLAMs, soft switches, and voice gateways that enable service providers to deploy highly efficient, scalable end-to-end multiservice networks
- **Standards-based provisioning**, with support for TR-069 and XML, that reduces operating expenses by enabling zero-touch deployments, eliminating the need for highly skilled technicians and costly truck rolls to deploy new services
- **Compact design** that integrates voice, data, switching, wireless, security, and application support in a desktop device that is ideal for simple, space-saving small business deployments
- **Competitive pricing with support for premium services** that reduces capital expenses, warehousing costs, and the need for complete equipment upgrades when service requirements change

Product Specifications

Table 2 lists the software features of the Cisco SRP 500 Series, Table 3 gives the voice features, and Table 4 describes the wireless features.

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Table 2. Software Features of the Cisco SRP 500 Series

Feature	Description
Routing	• Static routing • Routing Information Protocol (RIP) versions 1 and 2 • Generic routing encapsulation (GRE) • 802.1d Spanning Tree Protocol • Layer 2 Tunneling Protocol version 2 (L2TPv2)
Data features	• IEEE 802.3u Fast Ethernet (SRP 520 models), IEEE 802.3ad Gigabit Ethernet (SRP 540 models) • Address Resolution Protocol (ARP) (RFC 826) • DNS client A record (RFC 1706), SRV record (RFC 2782) • Dynamic Host Configuration Protocol (DHCP) client (RFC 2131) • DHCP server (RFC 2131) • Point-to-Point Protocol over Ethernet (PPPoE) client (RFC 2516) • Internet Control Message Protocol (ICMP) (RFC 792) • Transmission Control Protocol (TCP) (RFC 793) • User Datagram Protocol (UDP) (RFC 768) • Real-Time Transport Protocol (RTP) (RFC 1889, RFC 1890) • Real-Time Control Protocol (RTCP) (RFC 1889) • Trivial File Transfer Protocol (TFTP) • Real-Time Streaming Protocol (RTSP) • HTTP (RFC 2616) and HTTPS (RFC 2818) • Network Address Translation (NAT) (RFC 1631/3022) • Reverse NAT • RTSP NAT ALG • Simple Network Time Protocol (SNTP) (RFC 2030) • DiffServe Code Point (DSCP) (RFC 2474) • Type of service (ToS) (RFC 791, RFC 1349) • Router or bridge mode of operation • MAC address cloning (Ethernet WAN models) • Port forwarding • IP multicast; Internet Group Management Protocol (IGMP) versions 1, 2, and 3; IGMP proxy • Universal Plug and Play (UPnP) • Dynamic Domain Name System (DDNS) • DNS proxy • DNS spoofing
DSL (DSL models only)	• ATM Variable Bit Rate/real-time (VBR-rt) • ATM Unspecified Bit Rate (UBR), Constant Bit Rate (CBR), and Variable Bit Rate/non-real-time (VBR-nrt) • Up to four Permanent Virtual Circuits (PVC) • ATM operation, administration, and maintenance (OAM) • Support for F5 continuity check; segment and end-to-end loopback; and Interim Local Management Interface (ILMI) • Point-to-Point Protocol over ATM (PPPoA) (RFC 2364) • PPP over Ethernet (PPPoE) • IP over ATM (IPoA) (RFC 1577) • Bridged Ethernet over ATM (EoA) (RFC 1483)
Switch features	• Automatic medium dependent interface (MDI) and MDI crossover (MDI-X) • 802.1Q VLANs (5 on SRP 520 models, 10 on SRP 540 models) • MAC filtering (SRP 540 models only) • Storm control

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Security features	• Secure connectivity • Site-to-site IPsec VPN • Hardware-accelerated Data Encryption Standard (DES), 3DES • IPsec tunnels (5 on SRP 520 models, 10 on SRP 540 models) • NAT transparency • Stateful inspection routing firewall • Secure HTTP (HTTPS) support for remote access management • Multi-level password-protected configuration for web • Denial-of-service (DoS) prevention • Web filtering for Java, ActiveX, proxy, and cookie blocking • VPN pass-through for IPsec, Point-to-Point Tunneling Protocol (PPTP), and L2TP • 64- and 128-bit Wired Equivalent Privacy (WEP) • Service Set Identifier (SSID) broadcast disable • Access restriction by MAC and IP address • Wi-Fi Protected Setup (WPS), Wi-Fi Protected Access (WPA), WPA2 • Security key bits: 64, 128
QoS features	• Weighted Fair Queuing (WFQ) - four queues • Low-Latency Queuing (LLQ) • Class of service (CoS)/DSCP traffic classification and queuing by LAN port, VLAN, MAC address or application • Traffic shaping
Provisioning, administration, and maintenance	• TR-069 • Automated provisioning and upgrade via Cisco XML profile, HTTP, TFTP, HTTPS • Asynchronous notification of upgrade availability via NOTIFY • Web browser administration and configuration via integral web server • Event logging • Stats in BYE message • Syslog and debug server records • Per-line and purpose configurable syslog and debug options • Simple Network Management Protocol (SNMP) versions 1 and 2
High-availability features	Automatic failover and recovery of WAN connection enabled by supported USB mobile broadband modem or by second WAN interface (SRP 540 models)

Table 3. Voice Features of the Cisco SRP 500 Series

Feature	Description
Voice gateway	• SIP version 2 (RFC 3216) • Sending SIP messages via UDP/TCP • Echo cancellation (G.167 and G.168) • Dynamic jitter buffer • Simple traversal of UDP through NAT Serial Tunnel (STUN) (RFC 3489) • SDP (RFC 2327) • RTP/ RTCP over UDP, RTCP-XR (RFC 3611) • 3-way conferencing • Remote firmware upgrade • Dual-tone multifrequency (DTMF) tone detection and generation • Voice activity detection (VAD) • Silence suppression • Comfort noise generation (CNG) • Caller ID generation and detection (frequency shift keying [FSK] and DTMF) • Media loopback • SIP Transport Layer Security (TLS) • Support for 2 simultaneous voice or fax calls • T.38 fax relay, including V.17, V.21, V.27ter, and V.29 and fax pass-through (pulse code modulation [PCM]) (T.38 support is dependent on fax machine and network/transport resilience)

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International Telecommunications Union (ITU) standard voice codecs	Voice algorithms • G.711 (a-law and μ-law) • G.726 (16/24/32/40 kbps) • G.729 AB • G.723.1 (6.3 kbps, 5.3 kbps)
Telephony interface signaling support	• Ring voltage: 40 to 90 Vpk • Ring frequency: 20 to 25 Hz • Ring waveform: trapezoidal with 1.2 to 1.6 crest factor • Maximum ringer load: 3 ringer equivalence numbers (RENs) • On-hook/off-hook characteristics: ◦ On-hook voltage (tip/ring): -46 to -56V ◦ Off-hook current: 18 to 20 mA ◦ Terminating impedance: 600 ohm resistive ◦ 270 ohm + 750 ohm//150 nF complex impedance ◦ Frequency response: 300 to 3400 Hz
Voice features	• Call forwarding: no answer/busy/unconditional • SIP TLS • Call transfer • Call waiting/hold/retrieval • Three-way conferencing • Caller ID number and name (primary line and on call waiting) • Caller ID block (prevents sending out the caller ID) • Anonymous call blocking • Distinctive ringing • Do not disturb setting • Repeat dialing on busy • Call return • Emergency call support • Dial plan • Speed dial • Auto-attendant • Multiroom meet-me conference
Voice port interfaces	Support FXS and FXO, FXO port on SRP 520 models is for lifeline support only
Fax and modem	• Fax and modem pass-through: Allows fax and modem traffic to pass through a voice port. • Fax relay: Provides a more robust protocol for fax transmission over packet networks. Also supports the T.37 and T.38 fax protocols.

Table 4. Wireless Features of the Cisco SRP 500 Series

Feature	Description
WLAN hardware	• Wi-Fi 802.11b/g/n • WPA and WPA2 • Wi-Fi Multimedia (WMM) • Wi-Fi 802.11n draft v2.0 certified • Single captive antenna on SRP 520 models, dual TNC antennas on SRP 540 models • Default antenna gain: 2.2 dBi • WPS button associated with configurable SSID
WLAN security features	• 802.11i • WPA and Advanced Encryption Standard (AES) (WPA2 - Personal and Enterprise modes) • Static and dynamic WEP • Temporal Key Integrity Protocol/Simple Security Network (TKIP/SSN) encryption • MAC authentication/filter • Configurable limit on the number of wireless clients (up to 25 clients) • Configurable RADIUS accounting for wireless clients (up to 25 clients) • Pre-Shared Keys (PSK)
SSIDs	4

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System Specifications

Table 5 lists the system specifications for the Cisco SRP 500 Series.

Table 5. System Specifications

Feature	Description
Default DRAM	• 64 MB on Cisco SRP 520 models • 256 MB on Cisco SRP 540 models
Default flash memory	• 32 MB on Cisco SRP 520 models • 64 MB on Cisco SRP 540 models
WAN	• Cisco SRP 521: Fast Ethernet • Cisco SRP 526/527: ADSL 2+ • Cisco SRP 541: Gigabit Ethernet • Cisco SRP 546/547: ADSL 2+ (LAN port 4 may be configured as a WAN port on ADSL 2+ models)
LAN switch	Managed 4-port Ethernet switch with autosensing MDI/MDX for automatic crossover SRP 520 models support 10/100BASE T, SRP 540 models support 10/100/1000BASE T
802.11b/g/n WLANs	Integrated on all models
USB 2.0 ports	• 1 port on Cisco SRP 520 models • 2 ports on Cisco SRP 540 models
LEDs	Power, WAN, Wi-Fi, phone, LAN, WPS
External power supply	Universal 100 to 240 VAC
Approvals and compliance	• Class B on Cisco SRP 520 models • Class A on Cisco SRP 540 models
Certifications	WiFi certified
Regulatory Compliance	
Safety	• IEC 60950-1 • AS/NZS 60950.1 • CAN/CSA-C22.2 No. 60950-1 • EN 60950-1 • UL 60950-1
Immunity	• EN 55024 • EN 300-386 • EN 61000-6-2 • EN 50082-1 • EN 55024 (CISPR 24)
EMC	• FCC Part 15, ICES-003 • EN55022, CISPR 22 • EN 300-386 • EN 61000-3-2 • EN 61000-3-3 • EN 50082-1 • EN 55024 ,CISPR 24 • EN 61000-4-2 • EN 61000-4-3 • EN 61000-4-4 • EN 61000-4-5 • EN 61000-4-6 • EN 61000-4-8 • EN 61000-4-11
RF EMC	• CFR47 part15.247 • RSS-210 Rev 5 • ETSI EN 300.328.1 • ETSI EN301.489.1& .17 • AS./NZS 4268

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TELCOM	• TIA-968 • CS-03 • ACIF S002 • ACIF S003 • ACIF S043 • ANZ PTC200 • ANZ PTC220 • ANZ PTC273 • TBR21
Environmental operating range	• Operating temperature: 32 to 104˚F (0 to 40˚C) • Non-operating temperature: -22 to 158ºF (-30 to 70ºC) • Operating humidity: 5 to 95% non-condensing • Noise level (max): silent • On premise only, restricted access area, permanent ground required, only to be serviced/installed by trained professionals.

Cisco Services

As part of the Cisco Small Business Pro Series, the Cisco SRP 500 Series Services Ready Platforms are supported by professionals in Cisco Small Business Support Center locations worldwide who are specifically trained to understand small businesses. The Cisco Small Business Support Community, an online forum, enables small business customers to collaborate with their peers to get answers and solve problems.

Table 6. SRP 500 Ordering Information

Part Number	Description
Ethernet	
SRP521W-K9-G1	SRP 521W, FE WAN, 802.11n FCC, 2FXS/1FXO, US power
SRP521W-K9-G5	SRP 521W, FE WAN, 802.11n ETSI, 2FXS/1FXO, EU/UK power
SRP521W-K9-G4	SRP 521W, FE WAN, 802.11n non-FCC, 2FXS/1FXO, ANZ power
ADSL2/2+	
SRP526W-K9-G5	SRP 526W, ADSL2+ Annex B, 802.11n ETSI, 2FXS/1FXO, EU/UK power
SRP527W-K9-G1	SRP 527W, ADSL2+ Annex A, 802.11n FCC, 2FXS/1FXO, US power
SRP527W-K9-G4	SRP 527W, ADSL2+ Annex A, 802.11n non-FCC, 2FXS/1FXO, ANZ power
SRP527W-K9-G5	SRP 527W, ADSL2+ Annex A, 802.11n ETSI, 2FXS/1FXO, EU/UK power

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